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CRUISE REPORT, DISC-85-2

Vessel: R/V Discovery (Maryland Geological Survey)
Cruise number: DISC-85-2
Parent project: Geology of Chesapeake Bay
Funding agency: USGS-Virginia Institute of Marine Science (VIMS)-Maryland Geological Survey (MGS) Cooperative
Funding amount: 25,000 first year
Contract number: USGS/VIMS Coop agreement no. 14-08-0001-A-0203
Contract start and end dates: July, 1984, 1 year renewable

Area of operations: Central Chesapeake Bay
Cruise dates: 17-24 September, 1985
Chief scientist(s): Steve Colman (USGS)
Jeff Halka (MGS)
Other scientific party: Woody Hobbs (VIMS)
Monica Webster (USGS, GFA)
John West (USGS, technician)
Ship's captain: Jerry Cox (MGS)

Purpose of cruise:

Collection of high-resolution seismic-reflection and sidescan-sonar data in order to define the geology and shallow structure of the Chesapeake Bay. The data will contribute to understanding the history and evolution of the Bay, and will provide basic data for management and planning decisions for the Bay, including those related to waste disposal; pollution control and clean-up; dredging and dredge-spoil disposal; and sand, gravel, and biological resources.

Navigation:

Positions were determined from Loran-C time delays on a NorthStar 6500 system, using lines 9960-X and 9960-Y. Coordinates were recorded and printed at five minute intervals on a Texas Instruments Silent 700 recorder/printer. Coordinates were also recorded by hand on the seismic-reflection records.

Scientific equipment employed:

ORE Geopulse sled and transducer
EG&G 234 power supply
Del Norte hydrophone streamer
DataSonics high-resolution seismic system
EG&G SMS 960 sidescan-sonar system
TSS 307B amplifier
Kemo VBF8 filter
Datum 9300 time-code generator
EPC 312 record annotator
EPC 3200 graphic recorder
EPC 1900 graphic recorder
Hewlett-Packard 8-track analog tape recorder
NorthStar 6500 Loran-C system
TI Silent 700 recorder/printer
Morrow XYP 4000 navigation plotter

Equipment performance:

All equipment performed extremely well, with the following exceptions: (1) the DataSonics and Geolpulse signals could not be recorded together on the two channels of the EPC 3200 due to interference, (2) a lead in the Nel Norte streamer broke, but was quickly repaired, (3) the Innerspace streamer used as a back-up while the Del Norte streamer was being repaired produced poor output, apparently due to a bad internal connection, and (4) the sidescan-sonar system failed completely after four days.

Cruise Summary:

The cruise was quite successful, despite being cut three days short because of Hurricane Gloria. A total of 280 nm (518 km) of tracklines were covered. Except for the hurricane, weather was excellent, with several flat-calm days. The seismic-reflection records obtained were very good except in local areas where the sediments contained biogenic gas. Penetration achieved by the seismic signals was mostly 100 msec or more, and the records clearly show the entire Quaternary and upper part of the Tertiary sequence of deposits. Multiple overlapping channels and channel-fill deposits related to major fluctuations in sea level were observed.

Attachment: track chart

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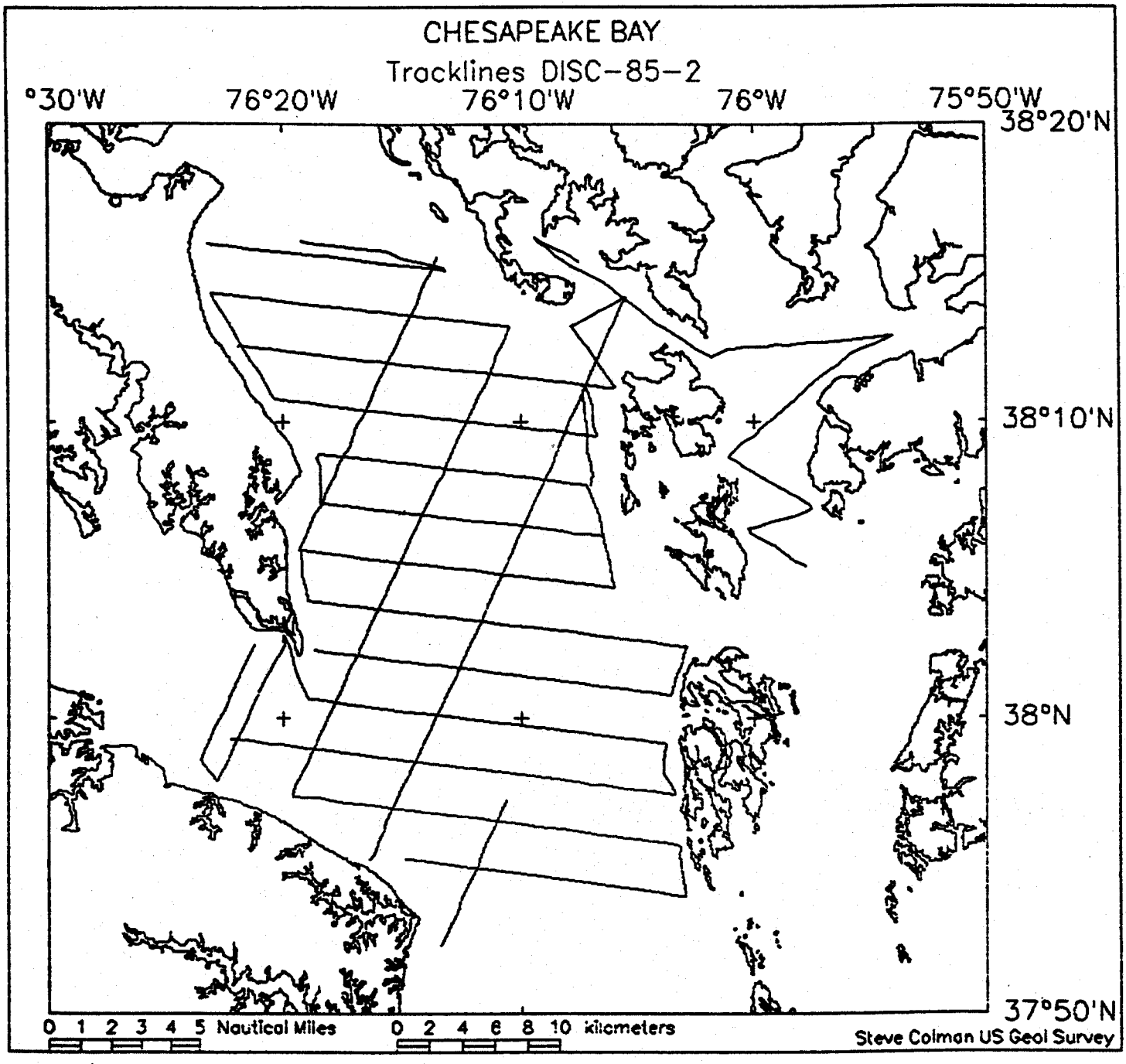
CHESAPEAKE BAY
Tracklines DISC-85-2
°30'W
76°20'W
76°10'W
76°W
75°50'W
38°20'N
38°10'N
38°N
37°50'N
0 1 2 3 4 5 Nautical Miles
0 2 4 6 8 10 kilometers
Steve Colman US Geol Survey